

*Perhaps some other
man, perhaps in these many
years, I could write the*

- A

TREATISE

ON THE

THEORY AND PRACTICAL SYSTEM

OF

MUSIC.

[PRICE ONE SHILLING.]

THE FIRST

THEORY AND PRACTICAL SYSTEM

MUSIC

BY JOHN B. HAYES

7.4.42
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A

TREATISE

ON THE

THEORY AND PRACTICAL SYSTEM

OF

MUSIC.

TO WHICH IS ADDED, BY WAY OF DISQUISITION, A FEW

OBSERVATIONS ON MINOR KEYS,

FOR THE CURIOUS OR COGNOSCENTI TO DIGEST; WITH RULES TO AMATEURS
AND YOUNG MUSICIANS, THAT WILL EXPLAIN TO THEM IN WHAT MANNER
MODULATION IS CONDUCTED, AND THE LAWFUL PROGRESSION OF CHORDS,
WITH THEIR ALLOWANCES.

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1798.

TREATISE

OF THE

THEORY AND PRACTICAL SYSTEM

M. C. S. V. C.

TO WHICH IS ADDED, BY WAY OF DISCUSSION, A

COMPARATIVE VIEW OF THE TWO SYSTEMS

FOR THE TREATMENT OF CONSUMPTION, AND THE
AND THE TWO SYSTEMS, THAT HAVE BEEN
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A
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IN this pathetic age for Music, it is yet to be lamented, that, among the Amateurs and Teachers of this delightful science, a total ignorance of the Theory evidently pervades the bulk of Professors. No wonder then that the Dilettanti in Music should remain in total darkness with respect to the theoretic part of this captivating amusement: It is, therefore, intended, in this little Treatise, to develope and explain the principles upon which the whole Theory is grounded, with remarks and observations on the system raised upon it, whereby the Musician will be sufficiently enlightened, so as to comprehend what Music in nature really is, by a clear investigation of the formation of the component parts of the Octave, termed the Theoretic System of

Music ; for no other system can be true. The Theoretic and Practical System, when perfectly understood, cannot fail to lead the Musician to a complete knowledge of Modulation, which has a very material share in affording delight, pleasure, and satisfaction to the performer. Although this Treatise will be but an epitome, when compared with the immense volumes that have treated on Music, yet the Author flatters himself it will be capable of shewing in what manner Modulation is conducted, with the rules of the progression of chords : in a word, this little Work will elucidate, in the compass of a few pages, all that is competent to a thorough knowledge of the fundamental system of Music ; and also, by way of disquisition, some observations will be made for the Cognoscenti to digest, on the propriety of allowing the sixth note of the principal Key, or Octave, to pass diatonically, that is by a tone, to the Dominant, or fifth note of the Octave, equally with the fourth note to the Dominant as a Fundamental ; with some reasons for the necessity there was of licensing and establishing this allowance as a rule in the Practical System.

Having said thus much by way of preface, in order to prepare the Musician for his better un-

derstanding of this little Dissertation on Music, the first object will be to explain, in a demonstrative way, the formation of the Diatonic Tone and Semi-tone that constitute the Octave. One who performs on a keyed instrument, and is acquainted with tuning it, will, without difficulty, perceive that in tuning the instrument by perfect fifths a derangement of the whole Octave is the consequence, and but one note in the Octave, in succession, can be toned by any voice, however flexible, not even by the inimitable Mrs. Billington, and that note will be the second in the Octave ; for, to supply a keyed instrument with true tones to every Octave in an extensive modulation, would encrease the number of keys and the instrument to such a size as to render it impracticable to perform upon it : therefore, the ingenuity of man has contrived a medium, or temperament, to make Music tolerably palatable on keyed instruments, which is done by tuning all the fifths within the Chromatic Octave a little flatter than perfect.

The best temperament, and which is now practised, is to tune the fifths one fifth of a comma flatter than perfect, by which method you cause an almost equal division of the imper-

fection, which the tuning by perfect fifths would unavoidably create ; and he that has the most distinguishable ear will put the instrument into the best medium of tone.

It is well known to Theorists, that the Octave, so commonly called, is in its nature very eccentric with respect to the quantity of its tones, for they consist of different ratios. At present, then, it will be sufficient to say the Octave is composed of seven tones, three of which are Major Tones, two are Minor Tones, and two are Semi-tones Major, and are the true Diatonic Tones that constitute the Octave, and which the voice and stringed instruments can only truly tone. Keyed instruments, although assisted by great art in the temperament of the tones, are all out of tune, in following each other, either ascending or descending, for the second will be two fifths too flat, the third will be one fifth too sharp, the fourth will be one fifth too sharp, the fifth will be one fifth too flat, the sixth will be two fifths too sharp, but the seventh will be perfect, with respect to the Octave, for all the Octaves must be tuned perfect ; yet the seventh will be two fifths too flat, descending to the sixth, or ascending from it, because the sixth must in tuning be necessa-

rily two-fifths too sharp; so that on keyed instruments, however nicely tuned, but one tone in the Octave can be truly in tune, and that will be the Octave. Such is the state and condition of all the tones of the Octave in keyed instruments.

To account for how, or by what means the Octave was found in nature to consist of the tones and semitones as above described, the reader is referred to Dr. Burney's History of Ancient Music, and also to Sir John Hawkins's Treatise on the same subject, both of whom have treated elaborately thereon. We will, therefore, proceed with our promise, on the subject of the Theoretic part, and endeavour to shew, mathematically, the ratios each tone and semi-tone are compounded of, that comprize the Octave; viz. first, to demonstrate the ratio of an Octave being two to one, take a wire of any given length, say one foot, which wire, with a given weight or tension, when struck, will vibrate, and sound to the ear what is commonly called a unison, which in figures is one. Divide the above wire in exact two halves, one of its halves, with an equal weight and tension as to the whole, will vibrate when struck, and sound to the ear an Octave, and its vibration will be as

two to one; and its coincidence, that is the vibration, will meet every second time, which is the ratio, as above, of two to one; and both wires, when struck with equal weight and tension, will to the ear sound the Octave: therefore this point is clearly proved, to a demonstration, so as never to be overturned.

The next in order is the chord of the fifth, which is also proved by taking a wire as above, and dividing it into two parts; and one part to consist of three fifths, the other part of two fifths. The longest wire, consisting of three fifths, will, when struck, vibrate twice, and the shortest wire, which consists of two fifths, will, when struck, vibrate three times to the other's twice, and the ratio is as three to two; and when struck together, will sound to the ear a perfect fifth; and the coincidence will be every third time.

The next in order is the chord of the fourth, whose ratio is four to three; and a wire, divided into two parts, the one of four sevenths and the other three sevenths, the longest part will vibrate three times, and the shortest part will vibrate four times, and, when struck together, will sound to the ear the chord of the

fourth. Its ratio is four to three, and the coincidence will be every fourth time.

The next in order is the chord of the third, which also is proved by a wire divided into two parts, the longest to consist of five parts, the shortest of four parts : the five parts will vibrate four times, and the four parts will vibrate five times, and when struck together will sound the chord of a Major third to the ear. Its ratio is five to four, and the coincidence will be every fifth time.

The next in order is the chord of the Minor third, which also is proved by dividing a wire into two parts, the longest to consist of six parts and the shortest to consist of five parts : the six parts, when struck, will vibrate five times, and the five parts will vibrate six times ; and the coincidence will be every sixth time. The ratio is six to five, and, when struck together, will to the ear sound a Minor third ; the Major sixth will, by lengthening the wire of five parts to double its length, vibrate only three times instead of six, which, when struck together with the wire of six parts, will sound to the ear a Major sixth, which is only an inversion of the Minor third. But the ratio will be

five to three instead of five to six. It is the same with an inversion of the Major third, only with this difference, that the wire of five parts must be shortened to one half its length, and will vibrate eight times, instead of four times, and when struck together with the wire of four parts, will sound to the ear a Minor sixth, and is an inversion only of the Major third: but its ratio is eight to five instead of five to four. Those chords, whose ratios are as two to one, three to two, four to three, five to four, six to five, are the harmonical ratios; from which all other ratios are derived, and are principles upon which the Diatonic and Chromatic Scales are constituted.

Having, as hath already been promised, given some mathematical proofs of the truth in the Theory of Music, it shall be our next object to explain the Diatonic Scale, with their true characters, according to the modern mode of *sol-fa'ing*, in the natural Key or Octave.* I call (what is commonly understood by the word Key) Octave, because every Key is attached to some Octave. The natural Octave then of C is sol-fa'd thus:

C	fa,	D	sol,	E	la,	F	fa	G	sol,	A	la,	B	mi,	C.
	T		t			S	Major	T		t		T		S Major

* The Key and Octave I term synonymous.

the Octave *fa*, and the quality of the tones is distinguished by letters, thus:—great *T* for a Major Tone, little *t* for a Minor Tone, *S* Major for a Semi-tone Major as above ; so that you will easily perceive that *C* is unison, *D* a Major Tone, *E* a Minor Tone, *F* a Semi-tone Major, *G* a Major Tone, *A* a Minor Tone, *B* Major Tone, and *C* a Semi-tone Major and the Octave. Thus is the Octave formed by the great Contriver of the universe, and, as it has been already said, this same Octave, from the inequality of its tones, baffles all art to form or construct a keyed instrument capable of supplying the various Octaves with their proper tones, for the different Keys the Practitioners of Music are now accustomed to modulate into ; we must, therefore, be contented with the present, and, I believe, the best improvement that is in the power of human ability to produce.

We come now to that part of the Treatise which is called a Disquisition, or Critical Inquiry into the Propriety of allowing the Sixth Note of the Octave to pass diatonically to the fifth or Dominant, * equally with the fourth, as

* The fifth is termed Dominant, because it is the Governing note.

a Fundamental, in the discussion of which it is meant to prove that that which is commonly termed the Minor Key, or with more truth the Key of the Sixth Note in the Octave, is an imperfect Key, if the Theory be true ; for this obvious reason, because the sixth note is a member of the tonic or principal Key, and as a Key must bear a minor third, being a tone attached to the tonic or principal Octave. How then can it possibly have a true fourth, as is given to it by some Theorists? for this fourth note, so called from *A* minor as a Key, in truth is a major tone, and the second note of the principal Octave, which is *C* natural.

This being the data upon which the question is raised, consequently the sixth note of the Octave, commonly called the Minor Key, cannot be considered as a perfect Key, for the above reasons ; for the fourth note, taken from *A* as a Key, is a comma (a eighty-one to eighty) too sharp, therefore cannot be a true fourth to *A*. With as great a propriety it may be said, that the second note of the Octave has the requisite of a Key, which does not happen to be the case ; it not having a true fifth, cannot be a Fundamental : therefore *D*, as a second, being

precisely the same note as *D* is as a fourth to *A*, *A*, consequently, cannot bear a true fourth.

These truths want no further demonstration, and admitting it as an axiom, it may be fairly concluded upon as a necessary point to insist, that in modulating into the sixth note of the Octave, *D*, as a fourth, doth keep its character of *sol*, and that it ought not to diverge or sink into the character of *la*, to accommodate the sixth note of the Octave, or Key, with a true fourth; for, on the contrary, by preserving the character of *D*, which is the second note of the principal and a fourth to the sixth, the Fundamental ability of the sixth note in passing diatonically to the Dominant is also preserved, because that very fourth, as *sol*, although a comma too sharp for a true fourth to the sixth as a Key, will then be a true fifth to *G* the Dominant, which otherwise could not cadense upon the original or principal Key of *C*; therefore it is insisted upon again that *D* do not diverge, but that it do keep its true character of *sol*; for were it to be suffered to diverge, it would then become *la*, and, of course, be a member of another Octave or Key, which Octave would be *fa*. Again, if the sixth note, as a Minor Key, were to be allowed a

true fourth, there would be no necessity of preferring the sixth of a Minor Key as a better Fundamental to pass diatonically to its Dominant, rather than the fourth, for, in fact, the Minor Key's fourth is more imperfect than the Minor Key itself, because the fourth of the Minor Key has no true fifth; therefore the most judicious Composers generally modulate from the Minor Key's sixth, which would be *F* in *A* minor.

These facts weigh very much in favour of the opinion of those who allow the sixth of a Key to be diatonically to the Dominant as a Fundamental.

The utility then of establishing this principle respecting the character of *D* in the Octave of *C*, and as a fourth to *A* minor, the sixth note of the Octave, is its giving to the Composer a knowledge of the proper notes to prepare and resolve discords upon, and more particularly to assist the Musician in ascertaining what Octave or Key he is modulating into.

In concluding this subject a few observations will be made, that lead to the necessity of Musicians granting the licence of a diatonical pro-

gression to the fourth, fifth, and sixth notes of the Octave, to each other as Fundamentals.

It is an established practice, in the present System of Music, to allow all Chords that skip by thirds and fifths alternately, and that do bear true fifths, to be Fundamental Chords, and that all skips by fifths, that bear true fifths, succeeding each other within the scale of Modulation, are also lawful Fundamentals; but never two skips immediately following each other by thirds, for only one of them can be Fundamental. This is the law of progression in Chords. Supposing, for instance, in the Key of *C*, that *C* makes a skip to *A* a third below, or a sixth above, which is the same thing, and then to *F*, ---if *A* is chosen for the Fundamental, *F* cannot be a Fundamental; if *F* is chosen for the Fundamental, then *A* cannot be so. In the first instance, *A* being chosen for the Fundamental, the *F* then must be accompanied with a sixth: this sixth to *F* is *D*, and is a comma too sharp; therefore the Fundamental will not appear, for in truth *G* is the Fundamental, but as a part of the Chord of *G*, it may pass or return to the original Key of *C*. In the second instance, if you make *F* the Fundamental, which is the second skip of a third low from *C*, in that case *A*

may be accompanied with a seventh or a sixth; if with a seventh, *C* will be the Fundamental, and *F* in its effect will be the same as if it was a skip of a fifth from *C*, and the Base passes to *F* from *C* as it were by two skips of a third low; but *C* being the Fundamental of the Chord, notwithstanding *A* is in the Base, and the lowest note, the whole Chord in fact falls a skip of a fifth to *F*. But in the case of *A* being accompanied with a sixth, the Base *A*, figured with a sixth, is only an inversion of the Chord of *F*, and of course *F* is the Fundamental, continued from *A* to *F* a third lower.

Again, supposing that *C* skips a fifth to *F*, and then to *D* a third lower, *D* in that case will not be a Fundamental, notwithstanding the progression appears to be lawful, according to the general rule: but here is an exception to the rule, for, as it hath been observed before, the *D* being a Major Tone in the Octave of *C*, is a comma too sharp to bear a true fifth, which fifth is *A*, and a Minor Tone in the Octave; therefore *D* cannot be a Fundamental.

Under that predicament *F* will pass with more propriety as a Fundamental to the Dominant, and of course the Dominant may pass as

a Fundamental to the fourth ; for, were the Dominant to pass to *C*, it would be a final cadence.

The exception to the rule of progression being interrupted by *D*'s having no true fifth, is the cause or reason for that licence being granted to the fourth to pass diatonically to the Dominant:

If you had not chosen to avail yourself of the licence to go from the fourth to the Dominant, but rather chose to pass a third lower by *D* to the Dominant, in that case the Fundamental will be *F*, which *F* bears a true fifth in the Chord, and is a sanction for that Chord skipping to the Dominant by a fifth, which is frequently done, and under the mistaken idea of *D* being the Fundamental, which cannot be, for *D*'s fifth, which is *A*, wants a comma of a true fifth.

Having now clearly proved the imperfection of *D* in the quality of a Fundamental, it will be our next business to prove *A*, the sixth note of the Octave, to have the quality of a Fundamental, first, because it bears a true fifth in the Octave, and has its licence from the same apparent

necessity as the fourth hath of being allowed to pass diatonically a Fundamental to the Dominant, but with this difference, it having no sharp third, is only a relative Fundamental, and is therefore unqualified for a cadence, of course is not a governing Fundamental ; but as the fourth, it may go diatonically to the Dominant a Fundamental, and for the same reasons, viz. Suppose you skip from *C* to *A* a third lower, and then skip a fifth to *D*, *D* in that case, as hath been already insisted upon, cannot be the Fundamental, therefore *A* may pass for the same reasons as *F* a Fundamental to the Dominant, without going to *D*, and from thence to the original Key of *C*.

Again, if you skip from *C* to *A* a third lower, and then diatonically to *B*, in either case *B* will not be a Fundamental ; but *G*, although it does not appear, must be considered as the Fundamental, because the fifth to *B* is false. With respect to *E*, which hath also a true fifth, yet, from the difference of *E*'s circumstance with that of *A*, *E* is not allowed to go diatonically as a Fundamental either to *F* or *D*. To *D* it cannot pass as a Fundamental, from the exception of *D* to that quality, and to *F* it is not allowed so to pass, because it may go by a lawful progression to *F*,

which is by the way of *C*, and so to *F*, and it has a lawful progression to *F* from *C*, the natural Key, by skipping a fifth to *A*, and then a third to *F*, for in *E*'s passing by a skip of a third high from *C*, and from thence by a skip of a fifth low to *A*, it will be easily seen that both *E* and *A* are relative Fundamentals; but *E* hath none of the reasons that *A* has for being allowed to pass diatonically as a Fundamental, neither is *F* allowed to pass diatonically to *E* as a Fundamental, because *F* hath also a lawful way of going to *E* as a Fundamental; as for instance, *F*, by licence, may go to *G*, and *G*, by a skip of third low, may go fundamentally to *E*. But should *E* follow the chord of *F*, *F* may be considered as a Fundamental, but then the chord of *E* must not be considered as a Fundamental, for *C* will be the Fundamental.

Having now explained why some of the Octaves, bearing Chords, and passing diatonically to each other, are not allowed to have the properties of a Fundamental, although they may be allowed so in a lawful progression, whilst other tones, bearing Chords, are allowed that privilege, to pass diatonically to each other as Fundamentals, it cannot but be now fully and perfectly understood. Yet it may not be unac-

ceptable to explain it a little further, as in the instance of *E*, the third note of the Octave, which bears a true fifth ; for, if you want to go to *F* from *E*, there is a lawful progression open, as *E* may pass by a skip of a fifth to *A*, and from *A* by a skip of a third low to *F*, therefore is not allowed to pass diatonically as a Fundamental to *F*, for when it does go to *F*, *C* is the Fundamental, and not *E*. It is exactly the same with *F*'s going to *E*, but in a nearer way, for *F* having the licence to go diatonically to *G*, it will quickly go to *E* by the skip of a third low to *G*, consequently neither *E* nor *F*, when going to each other, can be allowed to pass diatonically as Fundamentals, having none of the reasons that the fourth, fifth, and sixth, have to be allowed that privilege.

We will now proceed to say a few words respecting the received opinion of some Theorists, in admitting a true fourth to a Minor Key, and our objections, with the reasons that have been already adduced, as in the case of a Minor Key of the sixth note, when used as a relative or auxiliary to the principal Key, in not admitting the existence of a true fourth to that Minor Key. We will endeavour to explain the difference between Minor Keys, for it

must be remembered that there are two Minor Keys, viz. the one arising from a conversion of the Major Key into the Minor Key, which is the practice of Musicians frequently to do ; and the other Minor Key arising from the sixth note of the Octave or principal Key, and is termed a relative or auxiliary Minor Key, and which, as it hath been already, with some trouble, explained, cannot bear a true fourth.

To investigate the difference of these two Keys, we must enter into the nature of the converted Minor Key, to do which, we will take the Major Key of *A* with three sharps, which undoubtedly has a perfect fourth, as all tonic or principal Keys have.* The Major Key will be immediately converted into a Minor Key, by reducing *C* sharp a Semi-tone Minor lower ; of course, in this Minor Key the fourth will keep its character of *fa*, as in the Major Key. In this case the Minor Key will have its true fourth, and a close or two made upon this Minor Key will have a very good effect.

But if you proceed, as is the practice of modern Musicians, to make also a cadence

* Major Keys are termed tonic or principal Keys.

upon its third, which is *C* natural, and which *C* natural, to make a close upon, must have its second a Major Tone, which is *D*, but *D* is in this Minor Key only a Minor Tone,—is not that an abuse of the Theory? Therefore, when Musicians carry their Modulation too frequently from the Major Key to the Minor of the same note, and from thence to the third of the Minor Key, which is the principal of another Minor Key, the original Major Key of *A* with three sharps is entirely lost.

- Yet, if Musicians would confine themselves to a close or two on the Minor Key, derived or converted from the Major Key, it would be a good contrast, and afford a pleasing variety.

Having explained mathematically the constituent parts of the Octave in Diatonic Tones, we will here explain the Chromatic Scale, which is formed by proper Semi-tones being introduced between the Diatonic Tones; with the reason why those Semi-tones vary in their ratio, viz. *C* natural, created *C* sharp, is different in its quantity from *D* natural created *D* sharp, notwithstanding they appear to be the same; *F* natural, created *F* sharp, is different in its

quantity from *G* natural and *G* sharp, although they appear to be alike.

As it is not intended to go into any more mathematical proofs than have been already exhibited, the Amateur and young Musician must, for the present, content themselves with the following plain reasons, why those Semi-tones appear to be equal, and indeed, in the present Practical System, are considered to have no difference in their quantities, yet do in fact, for the greater part of them, vary considerably, and the reasons are obvious—Those Semi tones are in Nature designed to accommodate the natural Diatonic Tones and Semi-tones of the Octave, viz. *C* natural is created *C* sharp, with the ratio of 135 to 128, and is termed a Semi tone medius, to accommodate *D*, which is a Major Tone of the Octave. The *D* natural created *D* sharp is in its ratio as 25 to 24, and is termed a Semi-tone Minor, because *E* is a Minor Tone of the Octave. You will remember, that from *C* natural to *D* natural, *D* is a Major Tone, and will take a Semi-tone medius, whose ratio is as 135 to 128, and a Semi-tone Major, whose ratio is as 16 to 15 ; so that a Semi-tone medius and a Semi-tone Major comprize a Major Tone, but from *D* natural to *E* natural is only a Minor Tone ; therefore

D sharp will only be a Semi-tone Minor, the ratio as 25 to 24 ; but from *D* sharp to *E* natural is a Semi-tone Major: so that the difference of these tones of *D* and *E* is exactly one comma, as 81 to 80; the one a Major Tone and the other a Minor Tone. It is the same with *F* natural and *F* sharp, and with *G* natural and *G* sharp. But, from *A* natural to *A* sharp is a Semi-tone medius, and the ratio is as 135 to 128, because *B* is a Major Tone.

This is sufficient to inform the Amateur that whenever a Semi-tone is introduced to a Major Tone, the Semi-tone will be of greater magnitude than when it is introduced to a Minor Tone, and the difference of quantity will be a comma; as from *C* natural to *C* sharp is as 135 to 128 ; from *C* sharp to *D* natural as 16 to 15—Major Tone: from *D* natural to *D* sharp as 25 to 24 ; from *D* sharp to *E* natural as 16 to 15—Minor Tone: from *F* natural to *F* sharp as 135 to 128 ; from *F* sharp to *G* natural as 16 to 15—Major Tone: from *G* natural to *G* sharp as 25 to 24 ; from *G* sharp to *A* natural as 16 to 15—Minor Tone: from *A* natural to *A* sharp as 135 to 128 ; from *A* sharp to *B* natural as 16 to 15—Major Tone: from *B* natural to *C* the Octave as 16 to 15—Semi-tone Major. The above

Tones and Semi-tones are what comprise the Diatonic and Chromatic Scales.

The Diatonic and Chromatic Scales are highly necessary to be understood, not only for the purpose of knowing what Key or Octave the Composer or Performer is in, but also for conducting *Cannon* and *Fuge*; for a *Fuge* ought to have the same *sol-fa-ing*, whether it be a fifth below or a fourth above, or a fifth above or a fourth below; as for example, if the subject of the *Fuge* be *C fa*, *D sol*, *E la*, it will not be truly imitated by *G sol*, *A la*, *B mi*, for *A* is a Minor Tone, and *D* is a Major Tone, but it will be truly imitated by *F fa*, *G sol*, *A la*, for *G* is a Major-tone as well as *D*, and *A* is a Minor Tone as well as *E*, and *sol-fa'd* alike; but *G*, *A*, *B*, are *sol-fa'd* as above, therefore not a true imitation. The *Cannon's* subject must be followed by the same Tones, either in Unison or Octave.

The *Fuges* above described are imitations by Tones of the same Octave, but the Fundamentals are different. *C* is the Fundamental of the first three Tones and *F* the Fundamental of the last three Tones.

Again, in conformity to the Octave, *E*, *F*, *G*, *A* cannot be imitated by the fourth as *A*,

B flat, *C*, *D*, because these Tones are in another Octave, although they are sol-fa'd the same, for the strict rule is to have the imitation in notes of the same Octave; but if the subject of the above Fuge had been in *F*, and you had chosen to begin the subject on the fifth of the Key, in that case *E*, *F* natural, *G*, *A*, would have been properly imitated by *A*, *B* flat, *C*, *D*, because *E*, *F*, *G*, *A*, are Tones of the same Octave; therefore, as *E*, *F* natural, *G*, *A*, began the subject, *A*, *B* flat, *C*, *D*, will with propriety imitate *E*, *F*, *G*, *A*, all the Tones being of the same Octave, which Octave is *F*.

Again, *E*, *F* natural, *G*, *A*, will be truly imitated by *B*, *C*, *D*, *E*, being all Tones of the Octave of *C*, and of the same quality, although they do not sol fa alike, for *E*, *F*, *G*, are *la fa sol la*, and *B*, *C*, *D*, *E*, are *mi fa sol la*; but that is owing to the strict confinement of the mode of sol-faing, as the character *mi* must appear once in every Octave, and is always the Tone next below the Octave.

These four notes are termed Tetrachords, and their ratios are exactly the same, for *E*, *F*, *G*, *A*, consist of a Semi-tone Major, a Tone Major, and a Minor Tone, and from *E* to *A* is a true

fourth ; it is the same with *B, C, D, E*. But in modulating in a Fuge you are not confined to one or two Octaves or Keys, for *A, B flat, C, D*, will be in exact imitation of *E, F, G, A*, and also of *B, C, D, E*, being each of them Tetrachords, consisting of the same ratio, yet are Tones of different Octaves.

Having now gone through as much as was intended in this little Treatise, respecting the Theoretic and Practical System of Music, and conceiving it has been sufficiently explained and demonstrated what Music is in Theory, it is hoped, also, that the Practical System has been elucidated enough to enable Amateurs, as well as the major part of the Professors of this enchanting science, to see clearly now what, perhaps, before was in a great part hid from them. At some future period, it is meant to add, by way of Supplement, Examples in Notes of all that has been said in this little Work on the Theoretic and Practical System, with an illustration of Modulation in Chords, that will show in what manner it may be conducted, so as to open the ideas of young Musicians, and encourage them to attain to the knowledge of the various ways and Keys through which Modulation may be extended.

The examples will be simplified and decomposed, for the more clear and easy conception of the Amateurs, &c.

As the Plates that are intended for the illustration of this Work will be expensive, a Subscription will be opened, of which timely notice will be given.

ADDENDA.

IT has been said by a modern Author, that Theorists formerly had not decided whether the second of the Key should be considered as a Major or a lesser Tone: as a Major Tone, its fifth would be a comma too flat, and its third also a comma too flat, as from *D* to *F*, and from *D* to *A*: as a Minor Tone, its third and sixth would be both perfect, but its fourth and fifth would be each of them a comma too sharp, although perfect as a Major Tone. He concludes with saying, that the circumstances appear nearly equal as to the propriety of either the one or the other being used, supposing it to be a matter of choice, which is not the case, therefore he is obliged to agree with the present system, that the second note is beyond a doubt a Major Tone in the Octave, it having been incontrovertibly proved by frequent experiments; and adds, that there is a beauty in the discord upon the fifth, notwithstanding the second is a comma too sharp to cause a true Minor third with *F*, which appears to be a great de-

fect in the discord.* But when it is considered, that from *G* to *F*, which is a proper Minor seventh, and that, to form a seventh, consisting of a perfect Major third and two perfect Minor thirds, that seventh would be a comma too sharp, as would also the Semi-diapento or false fifth, notwithstanding the *F* would be a perfect Minor third to *D*; yet this perfect Minor third, which is effected by being obliged to raise *F* a comma in its operation, deforms and deranges the whole discord of *G, B, D, F*, although the Major and Minor thirds would be all perfect, and for this reason, because the seventh and the Semi-diapento would be both imperfect, a true Minor seventh not admitting of a perfect Major third and two perfect Minor thirds within its limits. Notwithstanding this apparent imperfection between *D* and *F*, this discord is the final cadence to the principal Key or Octave, and is the very soul of Music—Music could not exist without it. A question then will naturally arise, why is this discord, with such an evident and apparent defect, in its effect so beautiful? Be-

* A comma, to a Musical ear, is a great degree to want of true tune.

cause every Tone that constitutes it is an Elementary Tone of the Principal Octave.

After what has been said, can there be a shadow of a reason remaining, to adopt as a necessity a diverging system, to cause in a Chord a perfect fifth or Minor third? To prove the absurdity of such a practice, let us instance that of *D* as a second and a Major Tone, and *A*, the sixth of the Octave, as a Minor Tone, which by Nature form an imperfect fifth together, as Elementary Tones, and every Musician must be convinced that a diverging system ought never to be applied but in an absolute change of the Principal Key or Octave, to which Minor Keys are always attached; for the moment that a Tone is diverged, either by sinking or raising, on the presumption that the Discord or Chord should consist of a perfect fifth and third, a new Key or Octave is immediately introduced, and will not be relevant to the original or principal Octave the Musician is modulating in. For, whenever the Principal Key changes, the Minor Key is also changed, and consequently will have the same Tones of the Octave; excepting where an accidental flat or sharp is introduced, for the purpose of a cadence; Minor

Keys having no Major seventh natural to their Keys, as Major Keys have, therefore sharp and flat sevenths must be created when a cadence in a Minor Key is wanted, and is in imitation of a cadence in a Major Key, but with this difference,—the Major third and Minor third will be perfect in making the cadence upon *A* Minor, viz. in *E*, *G* sharp, *B* and *D*, there will be one perfect Major and two Minor thirds, and whatever Tones are used and mixed with accidental sharps or flats, should be Elementary Tones, for Nature demands and calls aloud for them in every Key or Octave the Musician chuses to modulate into. Can there then be a greater proof adduced to shew the necessity there is of maintaining, that all the Tones of a Minor Key should consist of the same Elementary character which constitutes the Principal Octave?

In the conclusion of this subject I have only now to add, that I conceive there can be but one opinion concerning the character of the Tones in the relative Minor Key, to confirm which a very simple trial is submitted, which will prove, beyond a doubt, the propriety of what has been, as it were, insisted upon, viz. Ring eight portable bells, descending from *A*,

which is the Octave of the relative Minor Key, to *C*, those bells will only sound true in tune when the note *D* (which is the second in *C* and the fourth in *A* Minor) is tuned as a Major Tone. The Author, therefore, is firmly of opinion, that the relative Minor Key cannot bear *D* as a Minor Tone, or true fourth, and the more so, he having, from trying the experiment with a set of portable bells, found the good effect of it in *D* as a Major Tone, and an intolerable contrary effect in *D* as a Minor Tone, after repeated alternate trials.

CHARACTER OF CADENCES.

A perfect Cadence is when the Bass rises a fourth or falls a fifth. An imperfect Cadence is when the Bass rises a fifth or falls a fourth. An half Cadence is when the Bass sinks a Semi-tone Major, and is accompanied with a sixth. A broken Cadence is when the Bass falls a third or rises a sixth, and is accompanied with a sixth. A Diatonic Cadence is when the Bass rises a Semi-tone Major, as from *B* to *C*, or *G* sharp to *A* Minor. A false Cadence is when the Bass falls a fifth, and is accompanied with a sixth, or a fifth and sixth, and is a modulation into the re-

lative Minor Key. A flying Cadence is when the Bass is accompanied with a Minor seventh, and the Bass rises a Tone whilst the upper part sinks a Semi-tone Major, and sometimes a whole Tone, which I also term a Diatonic Cadence.

All the above Cadences will be exemplified in the Plates which are intended for the supplementary part of this Work, with some examples of Hexachords.

FINIS.

[Entered at Stationers-hall.]

ERRATA.

Page 7, line 4 from the top, for Diatonic Tone and Semi-tone, read Diatonic Tones and Semi-tones.

Page 8, line 4 from the top, for tone read tune.

The reader will observe that the fractions in page 8, beginning in the ninth line from the bottom, and ending in the first line of the succeeding page, are fractions of a comma, viz. two fifths of a comma too flat, &c.

Page 15, line 2 from the bottom, for fa, read F.

Page 16, line 13 from the bottom, for be diatonically, read pass diatonically.

Page 32, lines 7 and 14, for Semi-diapento, read Semi-diapente.

